



Materials Engineering Branch

TIP*



No. 116 Transfer Film Adhesives

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Transfer film adhesive tapes are very similar in appearance to pressure sensitive adhesive tapes in that both consist of an adhesive attached to a backing material. The difference between the two is that for transfer film adhesive tapes, the release material is removed from the adhesive subsequent to attaching it to the working surface leaving only the adhesive on the working surface. For pressure sensitive tapes, the adhesive and release material are attached to the working surface where they remain intact. Another type of pressure sensitive tape with a backing is the double-sided version with the adhesive on both sides and a supporting layer sandwiched in the middle.

Transfer film adhesives possess a number of advantages over the one and two-part resin adhesives. For example, weighing, mixing, degassing and waiting for cure are virtually eliminated. The bond achieved by the transfer film is immediate and little or no waiting to perform the next step in the process is required. Film adhesives are available with a wide variety of properties that fulfill the needs of many users.

Some of the disadvantages associated with transfer film adhesives are that they tend to creep under load and are, therefore, not a good choice for some structural applications. They have poor performance at high temperatures, and they are shelf life limited as are the resins that they may replace.

While some film adhesives are acceptable for space flight use from an outgassing standpoint, others are not. The reader should refer to the Materials Engineering Branch's web page, <http://outgassing.nasa.gov/>, for acceptable film adhesives. As a rule, the acrylic adhesives (as compared to silicone adhesives) have lower outgassing.

Acrylic transfer film adhesives have been used successfully for many years in the aerospace field for electronics, structural applications (limited), heater mounting, shimming, etc. Their use requires less time, less equipment, somewhat less experience and could be a significant cost saver. Transfer film adhesives offer a viable alternative to the resin adhesive systems for a variety of bonding operations.